Transport Canada Transports Canada

TP 1624

Marine Casualty Investigations

Enquêtes sur les accidents maritimes

Investigation Report to the Minister pursuant to sections 542 or 545 of the Canada Shipping Act

Rapport d'investigation au Ministre conformément aux articles 542 ou 545 de la Loi sur la marine marchande du Canada

Canada

Ce rapport est aussi disponible en français.

REPORT OF INVESTIGATION INTO THE CIRCUMSTANCES ATTENDING THE GROUNDING AND SUBSEQUENT SINKING OF THE CANADIAN TRAWLER "ZIDANI" OFF CATALINA, NEWFOUNDLAND, NOVEMBER 30, 1986.

REPORT No. 474

These sections of the Investigation Report prepared pursuant to Section 542, or of the Preliminary Inquiry Report prepared pursuant to Section 545, of the Canada Shipping Act, are released for accident prevention purposes only and are confined to cause-related circumstances.

This report and its contents may be deficient and misleading if used in any other process and are not to be used or admitted in evidence in any legal proceedings, either civil or criminal, arising out of the casualty described in the report. The statements, opinions and findings in the report are those of the Marine Casualty Investigations Division only and do not constitute admissions made by or on behalf of Her Majesty the Queen in right of Canada.

Ces sections du rapport d'investigation ou du rapport préliminaire sont rédigées en vertu des articles 542 et 545 respectifs de la Loi sur la marine marchande du Canada et ne sont publiées qu'à des fins de prévention des accidents seulement et ne portent que sur les circonstances entourant le cas à l'étude.

Ce rapport et son contenu peuvent être insuffisants et trompeurs s'ils sont utilisés à d'autres fins et ne peuvent être utilisés ou acceptés comme preuve dans quelque procédure que ce soit, au civil ou au criminel, même si ces procédures découlent de l'accident décrit dans ledit rapport. Les déclarations, les opinions et les constatations de ce rapport appartiennent uniquement à la section des Enquêtes sur les accidents maritimes et ne constituent pas une acceptation de la part ou au nom de Sa Majesté du chef du Canada.

REPORT OF INVESTIGATION INTO THE CIRCUMSTANCES ATTENDING THE GROUNDING AND SUBSEQUENT SINKING OF THE CANADIAN TRAWLER "ZIDANI" OFF CATALINA, NEWFOUNDLAND, NOVEMBER 30, 1986

Particulars of Vessel

Name	"ZIDANI"
Official Number	348700
Port of Registry	St. John's, Nfld.
Call Sign	VC8504
Gross Tonnage	651
Registered Tonnage	394
Registered Length	43.52 m
Breadth	9.32 m
Depth	5.76 m
Draught (at time of casualty)	3.25 m forward 4.70 m aft
Type	Trawler, steel
Built	Norway, 1975
Propulsion	Diesel Normo LSMCB-9, 1500 BHP at 825 rpm single screw, controllable pitch propeller
Cargo	102 tonnes of ice
Crew	14
Passengers	Nil
Classification	Det Norske Veritas
Owners	Fishery Products International Ltd. St. John's, Newfoundland
Operators	Fishery Products International Ltd. Catalina, Newfoundland

Description of Vessel

The fishing trawler "ZIDANI" was a typical stern trawler of steel construction and, after completion in Norway, was registered in St. John's, Newfoundland, in 1975. A SIC 31 Certificate with an expiry date of March 4, 1987, was valid for the vessel and covered voyages within the area bounded by 6°N,30°W and 180°W.

The vessel was classed by Det Norske Veritas + 1A1 Stern Trawler Ice-C unrestricted Service. In 1985 the vessel underwent further ice strengthening with the addition of Lloyd's Grade "A" 22 mm plates port and starboard, together with additional framing and associated work.

NOTE: All times in this report are expressed in Newfoundland Standard Time (UTC minus 3½ hours) unless otherwise indicated.

Background

The Canadian fishing trawler "ZIDANI" departed from Catalina, Trinity Bay, Newfoundland, November 30, 1986, at 1520 bound for the NE Grand Banks fishing zone with a crew of 14 on board. Shortly after changing course as she exited the entrance to Catalina Harbour, a warning alarm sounded throughout the ship. It was discovered that there was a loss of pressure in the gear box and consequently the vessel lost forward thrust with the propeller pitch reverting to the full astern mode. Before the emergency main engine stop control could be activated, the vessel developed astern motion. Efforts to stop the vessel's astern movement by anchoring failed, and with a north-east wind of 15 knots, together with the astern thrust, the "ZIDANI" dragged her anchor until she grounded on the north-eastern tip of Green Island which was only one-quarter mile from where the pressure loss was experienced. The vessel pounded over the shoal tip of the island and across a narrow channel (known locally as a 'tickle' and referred to hereafter as such) to ground again on the shoreline.

Although three vessels went to her aid, nothing could be done to save the trawler and at approximately 1900 she developed a list, was holed and began to fill with sea water. Those on board were forced to abandon her at 1930. The "ZIDANI" later capsized, sank, and was declared a total loss.

The typical replacement cost of a fishing vessel of this size is $9,000,000.

Narrative

The Canadian steel fishing trawler "ZIDANI", with a crew of 14 on board, departed the Fishery Products International wharf in Catalina, Trinity Bay, Newfoundland, at 1520, November 30, 1986, bound for the NE Grand Banks fishing grounds. The vessel had been experiencing an occasional problem when the controllable pitch propeller's pneumatic control system would stick in a certain position. The problem was checked but, as it occurred only intermittently, it was difficult to locate. The system was serviced November 28-29, 1986, prior to this particular sailing, and although not corrected, it was agreed that the vessel could continue fishing until the Christmas tie-up at which time the problem would be resolved. The operating conditions of the control at the time of this sailing were no worse than previously.

The master had made routine VHF radio contact with St. John's Coast Guard Radio on Channel 16 advising of their departure and intended destination. The vessel was fully stored for a 10-day trip and carried 101.63 tonnes of ice, 75.66 tonnes of fuel, 71.39 tonnes of water and 6.88 tonnes of lube oil.

At departure time, the master, mate and chief engineer, were in the wheel-house and the second engineer was manning the engine-room. The cook was at his station in the galley and the remaining crew were at their departure stations, fore and aft. The vessel was manoeuvred into the main harbour/channel and then headed out on a gyro course of 072°. The engine was at 825 rpm and the controllable pitch propeller indicator read 75% of forward pitch. As the vessel reached the mouth of Catalina Harbour, with Burnt Point to the south, a course alteration to 117°(G) was made.

During the approximate 10-minute time span from the wharf to the course alteration, the crew had been involved in routine chores on deck and had assisted in placing the trawl doors (otter boards) to their position in the gallows with the mate operating the winch controls from the console in the wheel-house.

Weather conditions at the time were reported as snowing, visibility one-quarter mile, with a north-east wind of 15 knots and 1.6 m seas, air temperature 0 to -1°C.

Shortly after the course alteration to 117°(G) at about 1535, with the vessel approximately one-quarter mile from the north-eastern tip of Green Island, in position 48°30'29"N., 53°02'26"W., an alarm sounded throughout the vessel. On hearing the alarm, the chief engineer left the wheel-house to

go to the engine-room to investigate the problem while the second engineer, in the engine-room, discovered the problem and was on his way to the wheel-house to inform the chief. Both men met just outside the engine-room entrance on the factory deck. The second engineer informed the chief that there was a leak about the flange coupling on the pressure side of the "Dowty Pump" and the gear oil pressure was dropping rapidly. (See sketch No.1.)

The two men returned to the engine-room to the area about the afterside of the gear box where the Dowty Pump is located (see photo No.1). The portable deck plate covering that area had been removed by the second engineer and the two men saw a heavy forced discharge of oil coming from the area of the flange on the pressure side of the pump. It was spraying outward to starboard. The gauge for the gear oil pressure of the gear box nearby on the engine-room control panel was showing zero.

The chief rushed back to the wheel-house to inform the master of the pressure loss and that it would be necessary to shut down the main engine to complete repairs. The master, realizing their position relative to Green Island, together with the wind conditions, requested another minute or two of headway before shutting down in order to manoeuvre clear of Green Island. The chief then hurried back to the engine-room to see what could be done. In the meantime, the vessel began losing headway even though the engine controls in the wheel-house had not been changed. Within seconds, the vessel began to vibrate and it was realized that astern pitch had been applied to the propeller and the vessel was starting to move astern. A normal function for this type of C.P. propeller system is that when there is extreme or complete pressure loss in the gearbox oil system, the pitch moves hydraulically to the full astern position and the clutch is designed to stop the propeller rotation. The master advised the crew on deck to prepare to drop the anchor and he then went to the control console to push the emergency engine stop button. As he pushed the button, he noticed the vessel's wake passing forward of his vantage point in the wheel-house. Since the vessel had been in the full astern mode at 825 rpm for a short period of time, the "ZIDANI" had gained full astern motion and was moving stern first towards Green Island. The master then gave the order to let go the port anchor.

By the time the chief engineer had arrived in the engine-room, the engine had been stopped. He then returned to the wheel-house for further instructions from the master who, at that time, was unsuccessfully trying to raise the Company's plant office in Catalina on the VHF radio. The mate had gone to assist in letting go the anchor but, as it

was let go, a kink developed in the chain and, in order to free it, it was necessary to put power on the sweepline winch which served as the anchor windlass. Since the main engine was shut down, the chief engineer had to return to the engine-room and start up the No.2 auxiliary generator engine to give power to the winch. Once the winch was started, the strain was taken on the anchor chain and then the anchor was dropped again with the kink now freed.

The mate and the chief engineer returned to the wheel-house and although the anchor was on the sea-bed, it failed to hold and the vessel continued her astern movement. The mate tried to raise the plant by VHF radiotelephone, Channel 6, and finally made contact with the watchman at the watch-house who, in turn, contacted the Assistant Trawler Manager at his home by land phone at approximately 1550 informing him of the "ZIDANI"s situation. The Assistant Trawler Manager immediately went to the plant and contacted the master of the "ZIDANI" who informed him that the vessel had grounded on the tip of Green Island. Five to ten minutes had elapsed from the time the engine was shut down until the vessel made bottom contact on Green Island. Simultaneous to the vessel touching bottom, the mate had released the winch brake to the port side trawl door dropping the door over the side hoping it would further serve to stop the vessel's motion, but this action was too late to be effective.

The trawler manager had begun arrangements to have the master and crew of the "ZAMORA", another company vessel tied up at the wharf, report aboard. He had also contacted the manager of Fleet Operations at the Head office in St. John's informing him of the situation. The "ZAMORA" was readied and departed at 1627.

In the meantime, aboard the "ZIDANI" which was now pounding over the shoal on the north-eastern tip of Green Island into the tickle between the island and the main shoreline south of Burnt Point, the master had been in VHF radiotelephone contact on Channel 16 with St. John's Coast Guard Radio informing them of the situation and indicating that they were in no immediate danger. The mate had made VHF radiotelephone contact with the vessel "ZULA", some 20 miles ahead of the "ZIDANI", and requested that vessel come about to their assistance.

The owner of a local longliner the "LILLY-MARIA" in port at Catalina, monitoring the VHF radiotelephone, contacted the master of the "ZIDANI" advising him that he would come to assist. The "ZAMORA" arrived in the area at 1645 and let go her anchor in a position within one-half mile of the "ZIDANI", 0.11 miles from Burnt Point and 0.11 miles from

Green Island. (see chartlet). The "ZAMORA" remained there for about one-half hour until she started to drag her anchor in the freshening wind at which time she moved to a new position 0.24 miles from Burnt Point and dropped anchor there. She again dragged her anchor and had to move to Charlton Rock buoy where she anchored once more. She was unable to get close enough to the "ZIDANI" to send a line aboard and so went back to her original anchorage position. The "ZULA" arrived nearby at 1659 and stood by, unable to provide any more assistance than the other vessel already on the scene.

Although the master of the "ZIDANI" did not consider his vessel to be in any real danger at the time, he decided to send some of his crew to the "ZAMORA" while retaining only the most experienced and necessary personnel aboard. The "ZIDANI"s lifeboat was launched and six crew members, wearing lifejackets, boarded it and rowed to the "ZAMORA" where they were safely taken aboard. The lifeboat was secured alongside the "ZAMORA".

The "LILLY-MARIA", with a crew of 2 on board, arrived in the area at 1715 and took a line from the "ZIDANI"; however, due to the relatively small size of the "LILLY-MARIA" and the length of the towline plus its weight, any salvage attempt had to be abandoned. The weather continued to deteriorate and up until that point, it was felt that the "ZIDANI" had not been in any real peril.

Shortly after, the grounded vessel was found to be taking water, initially in the engine-room and later in the fish hold. Pumps were activated but the ingress of water soon began to exceed their capacity, although the auxiliary generating engine was able to remain in operation. It then became evident that the vessel was in serious trouble as she continued to pound on the shoreline. From the time she grounded on the shoreline, the vessel had swung round one complete 360° turn and by 1900 she was listing heavily to port. At that stage, due to the flooding, all power was lost, except for emergency battery lights.

The "LILLY-MARIA" was requested to manoeuvre alongside the "ZAMORA" and take the latter's lifeboat, which had been launched, to the "ZIDANI". The "ZIDANI"s lifeboat, secured alongside the "ZAMORA", was not readily available as it was partially filled with water due to the sea conditions. Four of the crew from the "ZAMORA" went in their lifeboat to assist the "LILLY-MARIA". At approximately 1930 the remaining 8 crew members of the "ZIDANI" were safely taken from the sinking vessel during two trips by the lifeboat to the "ZIDANI" from the "LILLY-MARIA". A line between the "LILLY-MARIA" and the "ZIDANI" had been maintained during the

operation and with all hands safely aboard, the line was severed and the "LILLY-MARIA" returned to the wharf in Catalina at 2016. The "ZAMORA" stayed in her position, took the "ZIDANI"s lifeboat aboard and drained the water from it before returning to the wharf at Catalina at 2030.

Weather conditions, in blowing snow and north-east winds of 20 knots, continued to deteriorate and it was considered unsafe to make an attempt to return to the area the following day. By mid-morning of December 2, 1986, when company officials went to the scene aboard the "LILLY-MARIA", the "ZIDANI" had capsized with 12 or more holes visible in her hull bottom. She was considered a constructive total loss.

At the time of departure from Catalina the "ZIDANI" had 75.66 tonnes of fuel aboard as well as 6.88 tonnes of lubricating oil. An oil slick was sighted in the area of the loss but it moved out to sea and there was no shoreline pollution resulting from the grounding. The Coast Guard Marine Emergency Section continued to monitor the situation for several days after the incident.

Analysis

1. Maintenance of System

The Lissen/Volda model C.P. a propeller system type ACG63, Serial Number 148 was manufactured by Volda Mek Verksted of Norway in 1974. It was the original equipment installed at the time of the construction of the vessel. The maintenance department at the Catalina plant serviced the gear box in January 1984, at which time new gear plates were installed. In response to reports during 1986 that the controllable pitch propeller's pneumatic system was sticking in a certain position at times, the pneumatic systems were checked on numerous occasions prior to November 1986. At that time, the company's Engineering Department decided to engage the services of the manufacturer's representative, along with a serviceman from the main Montreal agency who were making modifications to a sister ship in Burin, Newfoundland. Before being able to check out the systems on board the "ZIDANI", the manufacturer's representative was called away due to an illness in his family and had to return to Norway. However, the serviceman travelled to Catalina, together with the company's Senior Shore Engineer of the Trawler Department. A systematic check was performed on the system and when the main engine was run at various load positions, the pitch was found to stick at the 30% ahead position during passage from the ahead to the astern

mode, with all other positions ahead and astern functioning normally.

When stuck in the 30% ahead position, it was necessary to move the control handle to the full astern position to free it. The manufacturer had been contacted by telephone regarding the problem and suggested the slide valve be removed and cleaned. Upon completion, the pitch was tried again under load; however, the same problem occurred. Further telephone contact with the manufacturer was made and resulted in the Dowty oil pump being replaced. It was reported that during the removal of the pump by the shore mechanics, the compression fitting of the steel pipe pressure line had not been released. Instead, only the 4 bolts connecting the flange to the pump were removed, the proper method being to also release the compression fitting thus relieving any strain on that fitting. Failure to release the compression fitting kept it and the flange rigid against the pump when the four flange bolts were removed, thus causing unnecessary tension. It was further reported that during installation, the new pump would not readily fit into the spline connection, necessitating several attempts to align it. Also, the face of the pump to which the flange was bolted should have been fitted with a rubber O-ring, but this had been substituted by a standard oil packing. Once fitted, further testing of the system took place; however, the occasional sticking problem persisted.

Further conversations with the manufacturer resulted and the conclusion reached was that the problem appeared to be excessive wear on the guide bushing of the servo motor and to correct the problem, the gear box would have to be completely dismantled. As parts would have to be ordered from Norway, and the repair process would take a considerable amount of time, it was decided to conduct several hours more dock trials to prove that the system was safely workable. After advising the Head Office Engineering Department and the vessel's master of the findings, it was agreed by all that the operating conditions were no worse than they had previously been and that the vessel could continue fishing until the Christmas tie-up, at which time the unit would be completely dismantled and repaired.

2. Weather

When the "ZIDANI" departed Catalina, weather conditions were reported as snowing with one-quarter mile visibility and a north-east wind of 15 knots. Seas were

1.6 m and the air temperature 0 to -1°C. The marine forecast for Newfoundland issued by Environment Canada from the Newfoundland Weather Centre at 1530 local time on Sunday, November 30, 1986 - for Sunday night and Monday, with an outlook for Tuesday - stated:

> East Coast
>
> Storm warning continued -
>
> Easterly winds 20-30 knots increasing to northerly gales 40 to 50 tonight. Monday northeasterly winds 25 to gales 35. Visibility fair to poor in snow mixed briefly with rain this evening and fair to poor in snow or flurries Monday. Temperatures near zero falling to near minus 2 tonight.
>
> Outlook for Tuesday:
>
> Moderate northeasterlies. A few flurries.

3. Leaving Port

The "ZIDANI" was prepared for departure, as is normal, by the shore crew and her engine was running when the vessel's crew reported aboard. The vessel's engineers carried out their pre-departure check and everything was found to be satisfactory. She departed port uneventfully at 1520, November 30, 1986.

4. Alarm and Loss of Gear Box Oil

About 15 minutes after departure, an alarm sounded throughout the ship. The problem was immediately located by the second engineer, who was in the engine-room. The chief engineer, en route to find the trouble, met the second engineer just outside the engine-room. The two men returned to the space and viewed a heavily forced discharge of oil spraying outboard to the starboard bilge from an area about the Dowty Pump (see photos 1, 2, and 3). By then, the pressure gauge for the gear box oil was reading zero.

The chief engineer rushed back to the wheel-house to inform the master of the leak and that due to the pressure drop in gear box oil, it would be necessary to stop the engine to further assess the situation and to possibly effect repairs.

It was apparent that the total loss of gear box oil

occurred in a very short time, thus the leak must have been extensive. The area of the leak was also apparent and thought to be from the gasket between the flange coupling of the steel 0.22 mm i.d. oil supply line to the Dowty Pump pressure side. Reports from the engineers who saw the spray of oil, indicated that the spray at the time of the leak was outboard to the starboard bilge.

The company's engineering department performed a dockside test on the sister ship "ZAMORA" several days later in an effort to pinpoint the cause of the leak. The proper method to remove the flange coupling to the Dowty Pump was used and the rubber O-ring replaced by a 0.30 mm gasket before reassembling. The system was tested under severe load conditions. No leak developed. While still under load, the 4 flange bolts were slackened one-half turn which resulted in a minor leak but had no effect on the servo-pressure. The leak was vertically downwards. Wher the bolts were slackened further to simulate a major leak, as would be the case with the loss of the gasket, the oil leak/spray was vertical about the flange and not to starboard or port.

Had a fracture developed within the compression fitting of the steel oil supply line to the flange, the oil would spray out to starboard. Similarly, oil would spray out to starboard if the failure occurred in the fillet weld of the compression sleeve to the flange (see sketch No.2).

The report of the oil spray being more lateral and outward to starboard would tend to rule out the gasket fault and the latter two points would appear to be more likely the cause of the leak. Further, as reported in Analysis No.1, the incorrect installation method used in fitting the new pump lends credence to either of those two points as being the cause. A fracture within the pipe connection would not necessarily become apparent immediately, but after reconnection, could develop over a period of time and rupture later.

It is considered that the previous problem of the C.P.pitch control sticking at 30% ahead and the heavy oil leakage at the Dowty Pump are two separate problems although efforts to rectify the former may have contributed to the latter.

5. Location of Vessel

When the problem occurred, the "ZIDANI" was located in the normal shipping channel approximately one-quarter mile east of the north-eastern tip of Green Island. With north-east winds of about 15 knots, it was felt that a minute or more of headway would take the vessel clear of the Island where she could be safely anchored to effect repairs. When the vessel began to lose headway, the master requested the chief engineer to try and maintain forward propulsion for a further minute or two. The chief engineer rushed back to the engine-room to see what could be done but, when he reached the engine-room, the main engine had stopped. The master had previously activated the emergency stop button in the wheel-house in order to shut down the engine when astern pitch automatically took over and, without main engine power, nothing could be done to control the vessel's movement.

6. Loss of Forward Headway to Astern Motion

In order to fully explain the loss of forward headway as experienced aboard the "ZIDANI", an explanation of the operation of the Liaaen/Volda C.P. Propeller Type ACG63 System, fitted to the after end of the gear box, is necessary. For this purpose, the Instructions Manual issued with the system was used and excerpts from it appear herein. The system is such that the propeller has an oil lubricated internal mechanism, varying the pitch of the propeller blades as the push rod is moved aft or forward in the hollow propeller shaft, to which the propeller hub is fastened.

Pitch control servo motor, clutch, oil filter, oil cooler, oil pressure pump and necessary equipment for operating pitch control and clutch are provided in or on the gear box. Propeller pitch and clutch can be remotely controlled pneumatically from the control box in the vessel's wheel-house. Propeller pitch can be adjusted to any desired pitch between full ahead and full astern by means of the wheel-house control handle. The main feature of a C.P. propeller is the excellent manoeuvring properties combined with the possibility of optimum utilization of available horsepower under all conditions.

The time required for changing the pitch from 'full ahead' to 'full astern' varies with the speed of the engine. The propeller cannot be reversed faster than what corresponds to the delivery from the servo pump. It would, therefore, be of no use to pull harder on the

pitch control handle. In the event that the pitch should fail to respond to the pneumatic wheel-house control, it can be operated manually from a lever on the gear box. The manual system can be applied during failures of the pneumatic system but oil pressure is required for activation.

At the time the "ZIDANI" began losing headway, there was a known oil pressure failure due to a severe leak about the flange area on the Dowty Pump and the control panel gauge for that pressure read zero.

In the case of an oil pressure failure, an electric standby pump will cut in at 13 bar (15 bar is normal). A failure alarm is activated at 10 bar at which time the clutches should automatically disengage. (bar = lb/sq. in.)

In the case of an extreme pressure fall or a total pressure loss (zero pressure) in the gear box oil system, the normal result would be that the pitch would automatically move to the full astern position, a normal function for most types of C.P. propeller systems. With such occurrences, the clutch should also automatically release and the propeller should stop rotating.

When the "ZIDANI" experienced her rapid loss of gear oil, the clutch, for some reason, did not release and when the pitch moved to the full astern position and with the engine at 825 rpm, she began moving astern. Had the proper function of the clutch taken place, stern movement of the vessel might not have occurred and, subsequently, the anchor might have been released with main engine power supply to the hydraulic winch system. The vessel might have been stopped and repairs effected. With the main engine shut down it was not possible for the chief to make use of the manual operation for pitch control. The "ZIDANI" experienced full astern pitch and motion for a short period before the engine was shut down. Valuable time was lost in starting the auxiliary generator to activate the standby pump's hydraulic system to the sweep line winch, in order to let go the anchor, because the chief engineer had to return to the engine-room to start the generating engine.

By the time the anchor was dropped, the vessel was almost aground on Green Island and, to further complicate matters, the anchor did not hold.

7. Assistance and Rescue

Three vessels went to the assistance of the "ZIDANI"; however, none arrived in time to prevent the vessel from grounding. The "ZIDANI" had not taken water until after she grounded on the shoreline south of Burnt Point and by that time she was in a position in the narrow tickle between Green Island and the shoreline south of Burnt Point restricting vessels of the size required to tow her clear. The "ZAMORA" experienced difficulty keeping position when her anchor began to drag. She manoeuvred as closely as possible, without being endangered, picking up the first 6 crew members from the "ZIDANI" as weather conditions continued to deteriorate.

The "ZULA" stood by when she arrived at 1659 but, similar to the "ZAMORA", she could not be of assistance due to her size. The "LILLY-MARIA" managed to manoeuvre closest to the "ZIDANI" but her size was such that she was unable to tow the larger "ZIDANI". She did play an important part in rescuing the remaining 8 crew members safely from the "ZIDANI" and her efforts were commendable.

8. Life-saving Appliances and Equipment

The vessel complied with the appropriate regulations in the amount and type of approved equipment:

Lifejackets - The crew abandoned the grounded vessel wearing lifejackets originally stowed in their cabins. A spare was carried on board.

Liferafts - Although not utilized, two 30-man inflatable RFD rafts MK-4 with A-packs were on board and available.

Immersion Suits - None were required by regulation; however, 14 were on board and were brought from cabins for use if necessary.

Lifeboats - One 16-man G.R.P. approved boat stowed in chocks on the port side launched by a single arm davit. The boat was launched after grounding, starboard side to the shoreline south of Burnt Point. Six crew members rowed to the "ZAMORA".

Radiotelephone - Two VHF radios were carried and utilized in contacting the company's plant as well as St. John's Coast Guard Radio.

9. Pollution

An oil slick from the wreck was sighted moving out to sea in an easterly direction on December 1, 1986. The slick was estimated to be one-quarter mile wide by 2½ miles long. Approximately 80-100 birds sighted appeared to have been oiled. On December 2, 1986, most of the oil slick had moved out to sea and dissipated. A very small slick remained about the vessel but was later carried out to sea by the tide and north-east winds. The situation was monitored by the Coast Guard Marine Emergency section and no clean-up was required.

11. Experience

The master of the "ZIDANI" had served on that vessel for the last three years. He holds a Fishing Master's Certificate issued in 1967 and has 35 years seagoing experience, 25 of which as a fishing master.

The chief engineer joined the "ZIDANI" in March 1984 and holds a Chief Engineer Trawler Certificate issued October 29, 1981. He has 15 years seagoing experience.

The second engineer joined the company in June 1983 and holds a Fourth Class Motor ticket with Chief Trawler Endorsement issued in 1984. He has 11 years seagoing experience.

The first mate joined the "ZIDANI" in March 1984 and holds a Fishing Mates Third Class Certificate issued in 1980. He has 19 years seagoing experience all of which were on fishing trawlers.

The crew of the vessel were experienced having served with the company from 5 to 13 years on various vessels.

Findings

The steel fishing trawler "ZIDANI" developed a mechanical failure which resulted in the vessel grounding, subsequently capsizing and sinking off Catalina, Trinity Bay, Newfoundland, November 30, 1986.

It would appear that the following factors contributed to the loss of the vessel:

- improper procedures were used in the replacement of the C.P. propeller gear box oil pressure pump which may have caused a fracture to a pressure pipe from the pump or to the pump itself, resulting in the

total loss of gear box oil pressure;

- when the extreme loss of gear box oil pressure occurred, the C.P. propeller moved to the full astern position, as designed. However, contrary to a designed feature under such circumstances the gear box clutch failed to automatically disengage, resulting in 825 rpm of astern rotation;

- the vessel gathered sternway before the engine was shut down by use of the emergency stop button;

- the seriousness of the situation in which the vessel was to find herself was not immediately recognized;

- although in position for release, a turn in the chain prevented the anchor from being dropped until the auxiliary generator was started in order to supply power to the sweep line winch to which the anchor and chain were connected;

- the practice of using the ship's trawl door as an additional, or an alternate anchoring device, was not attempted until it was too late;

- the vessel was in an area of poor holding ground and when dropped, the anchor failed to hold;

- there was a strong on-shore wind; and

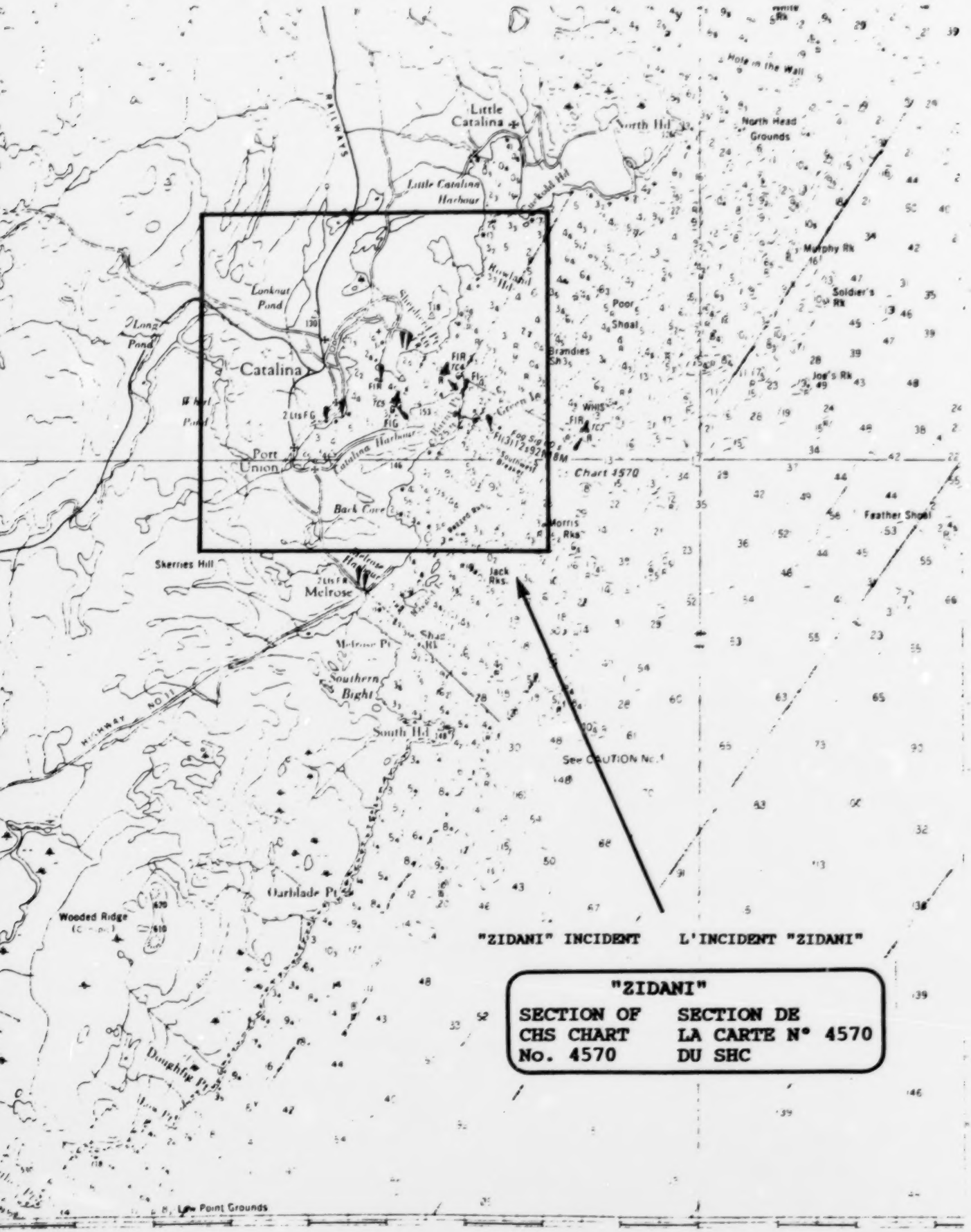
- the area where the trawler grounded presented difficulty for any attempt at salvage because of the shallow water on an exposed lee shore.

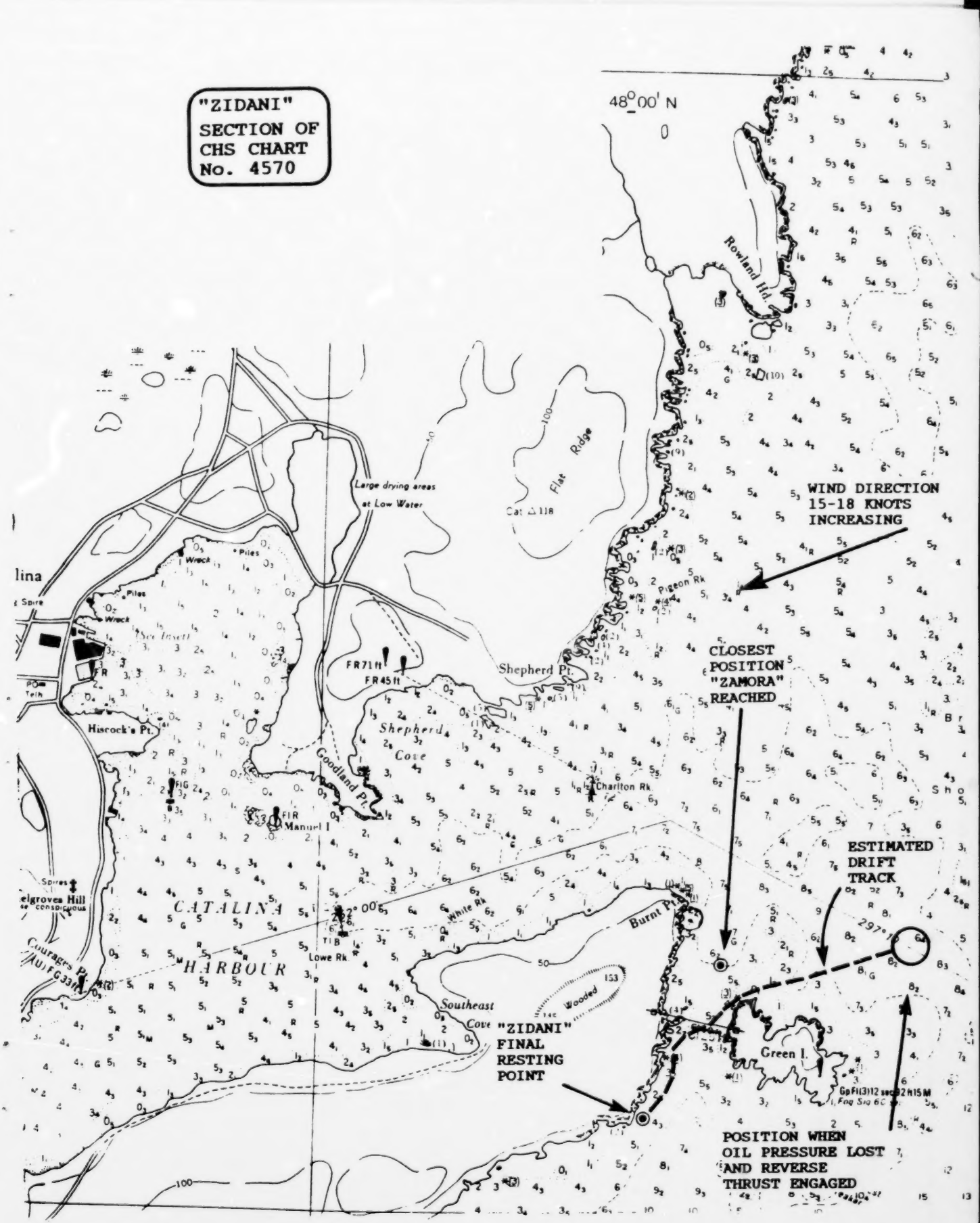
Other Findings

The C.P. propeller bridge control system had experienced an intermittent fault for some time despite several attempts by local service personnel to locate and repair it.

Weather conditions continued to deteriorate during the following 24-48 hours which precluded any local attempts at salvage.

OTTAWA, ONTARIO
JUNE 1987.

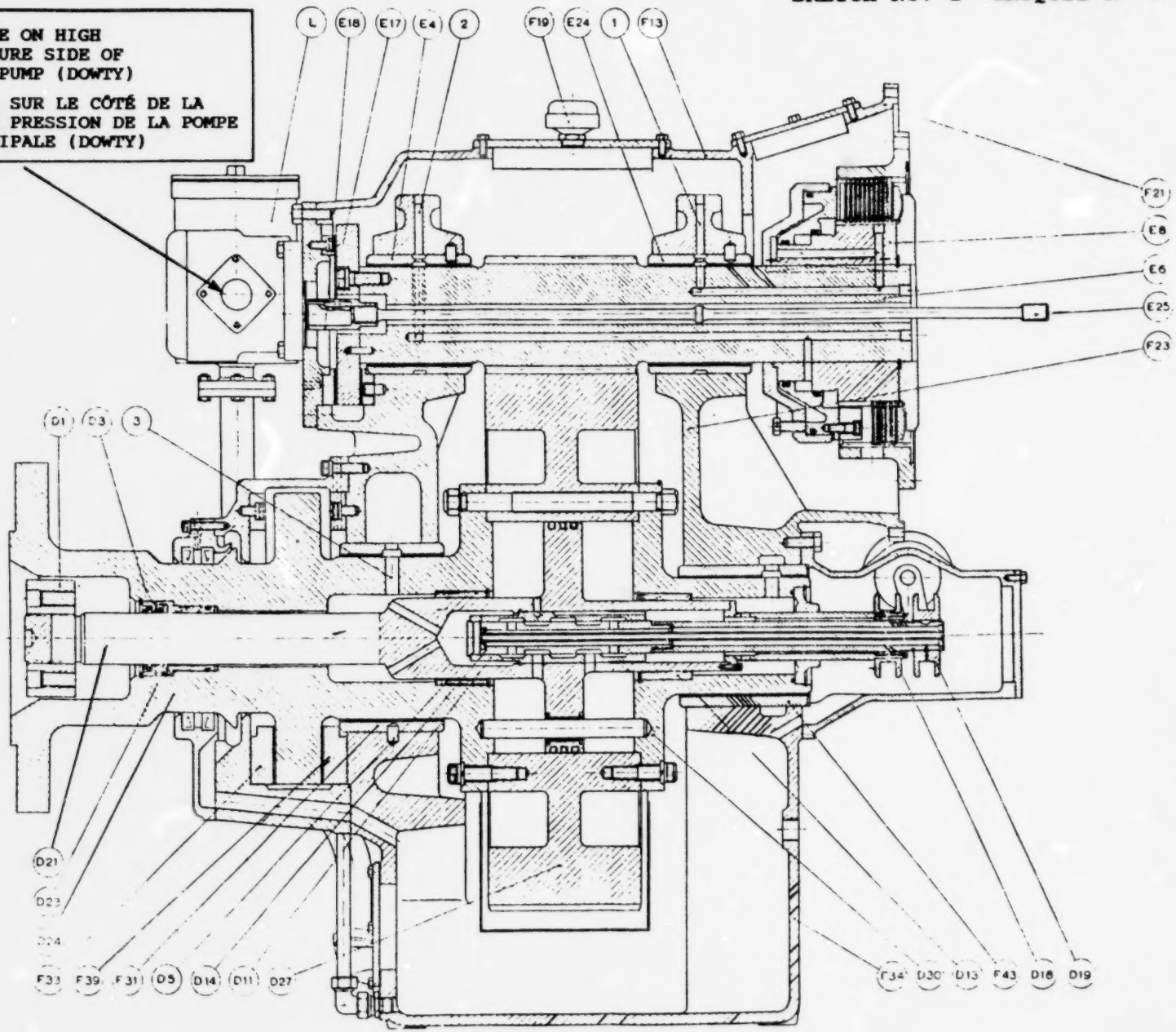

Little Catalina
Little Catalina Harbour
Hole in the Wall
North Hd
North Head Grounds
Murphy Rk
Soldier's Rk
Joe's Rk
Poor Shoal
Brandies
Lookout Pond
Long Pond
Catalina
Port Union
Catalina Harbour
Back Cove
Green Is
Chart 4570
Feather Shoal
Morris Rks
Jack Rks
Skerries Hill
Melrose
Melrose Pt
Southern Bight
South Hd
See CAUTION No. 1
Garblade Pt
Wooded Ridge
Doughlin Pt
Low Point Grounds
"ZIDANI" INCIDENT
L'INCIDENT "ZIDANI"
"ZIDANI"
SECTION OF CHS CHART No. 4570
SECTION DE LA CARTE N° 4570 DU SHC
Adjoining Chart 4563


"ZIDANI"
SECTION OF
CHS CHART
No. 4570
48°00' N
WIND DIRECTION
15-18 KNOTS
INCREASING
CLOSEST
POSITION
"ZAMORA"
REACHED
ESTIMATED
DRIFT
TRACK
"ZIDANI"
FINAL
RESTING
POINT
POSITION WHEN
OIL PRESSURE LOST
AND REVERSE
THRUST ENGAGED
CATALINA
HARBOUR
Rowland Hd.
Flat Ridge
Large drying areas
at Low Water
Shepherd Pt.
Shepherd
Cove
Goodland Pt.
Hiscock's Pt.
Manuel I
Pigeon Rk
Charlton Rk
White Rk
Burnt Pt
Lowe Rk
Southeast
Cove
Green I.
Courages Pt
Wooded
Piles
Wreck
FR71ft
FR45ft
297°
100
50

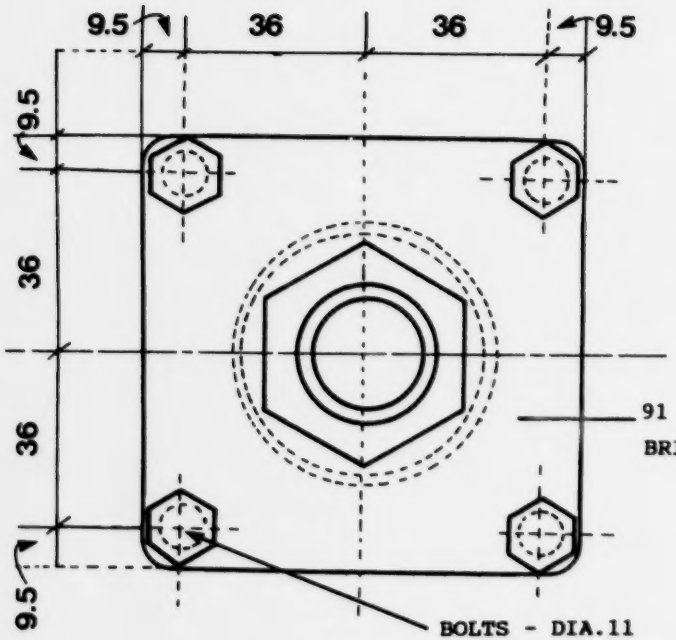
SKETCH No. 1 CROQUIS N° 1

FLANGE ON HIGH PRESSURE SIDE OF MAIN PUMP (DOWTY)

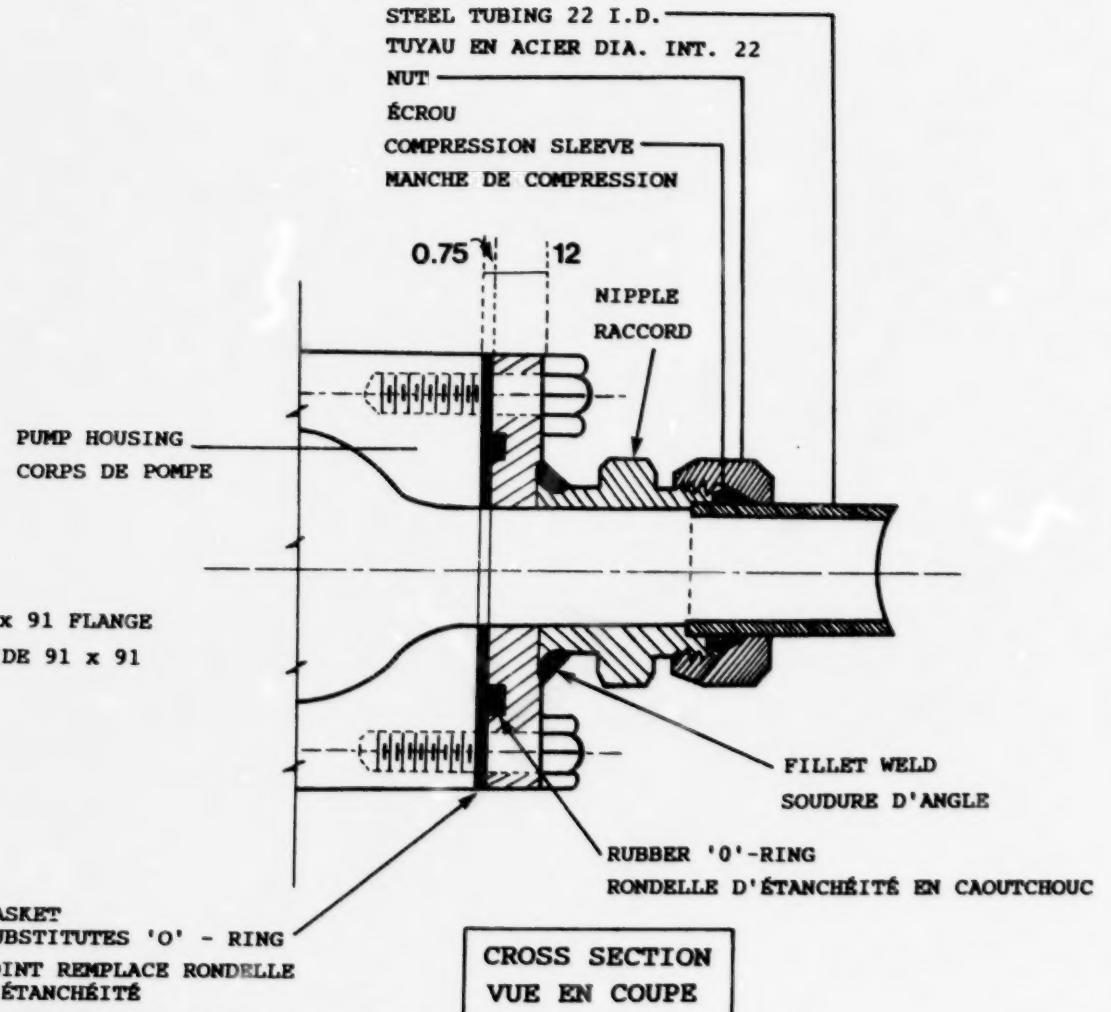
BRIDE SUR LE CÔTÉ DE LA HAUTE PRESSION DE LA POMPE PRINCIPALE (DOWTY)



SKETCH No. 2 CROQUIS N° 2



FRONT VIEW
VUE DE FACE



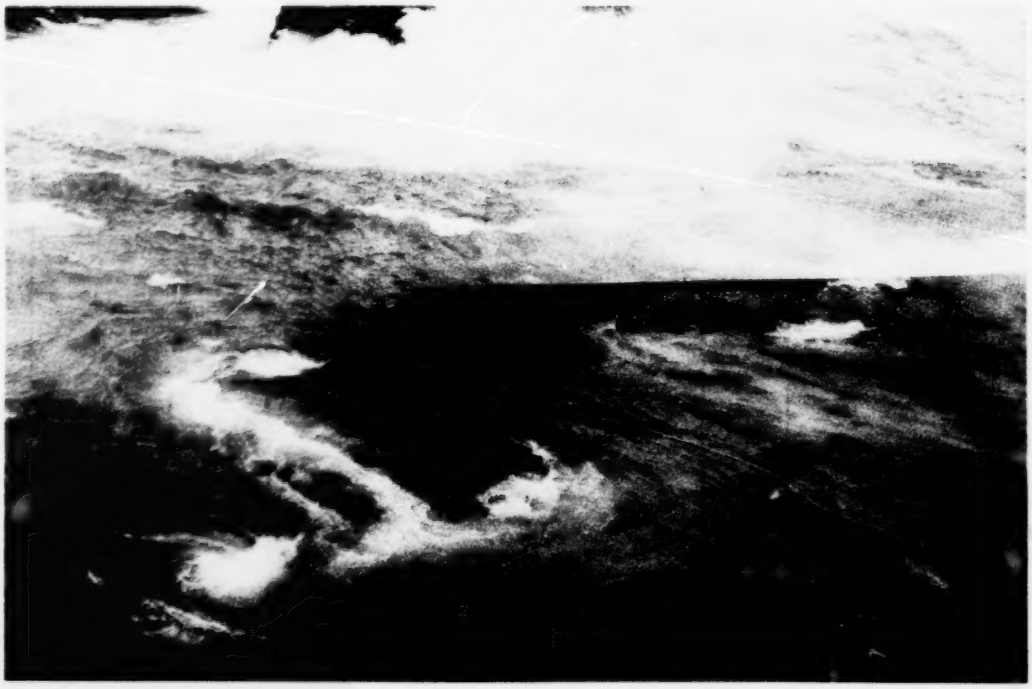
CROSS SECTION
VUE EN COUPE

DETAILS OF COMPRESSION
FITTING AND FLANGE AT DISCHARGE
SIDE OF MAIN PUMP

DÉTAILS DE LA GARNITURE À COMPRESSION
ET DE LA BRIDE SUR LA DÉCHARGE
DE LA POMPE PRINCIPALE

Green Island in background,
wreck of "ZIDANI" in centre.

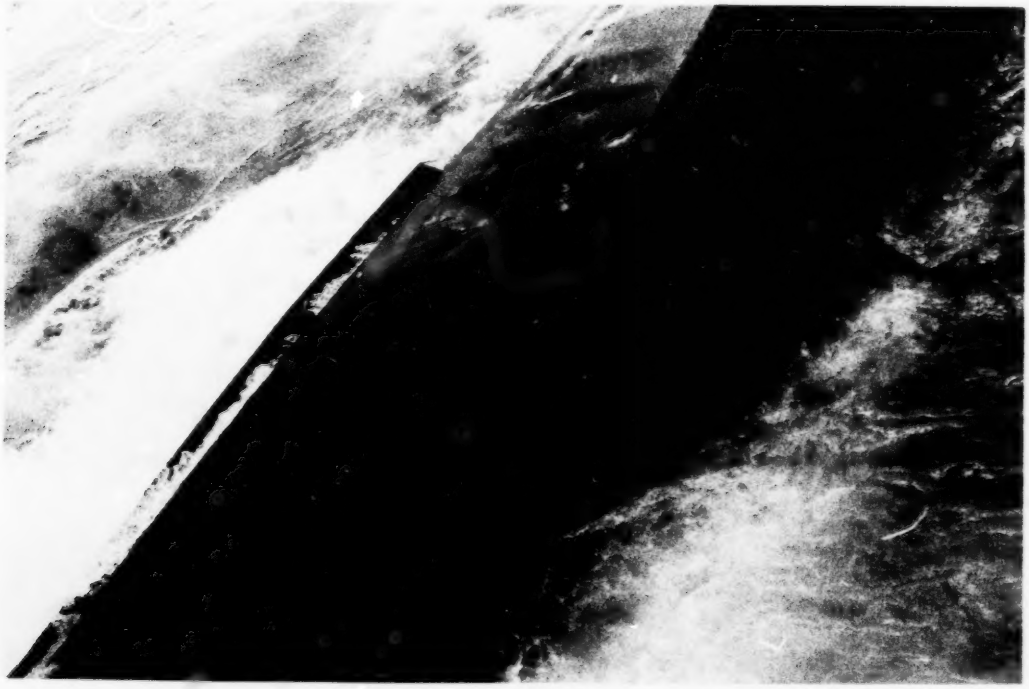
L'île Green dans l'arrière plan
l'épave du "ZIDANI" au centre.

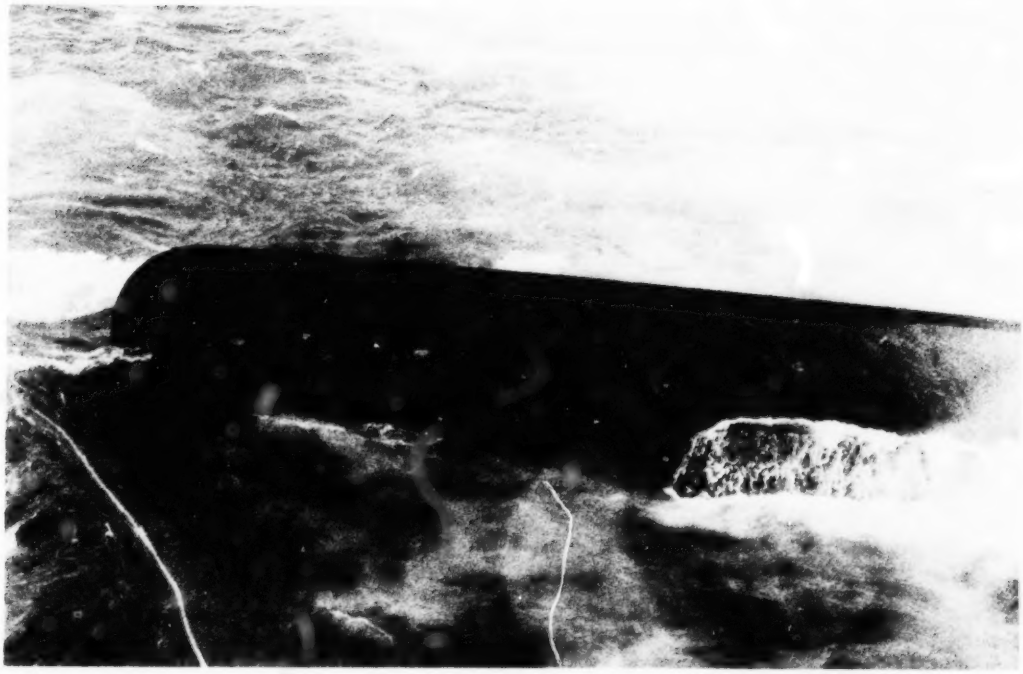


Wreck of "ZIDANI"
Épave du "ZIDANI"

Wreck of "ZIDANI"

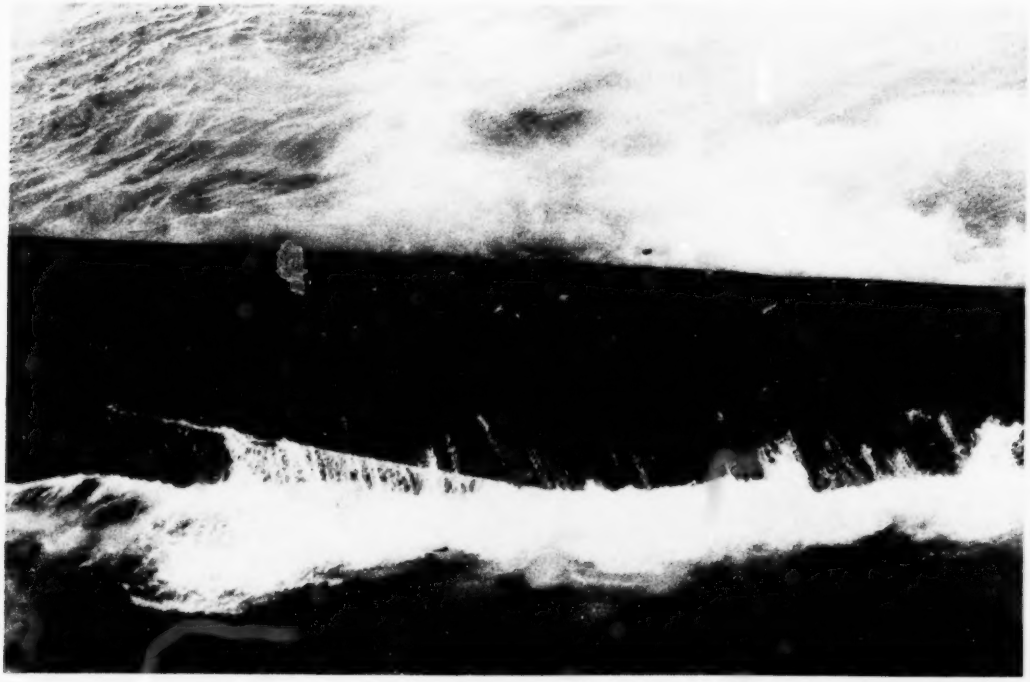
Épave du "ZIDANI"

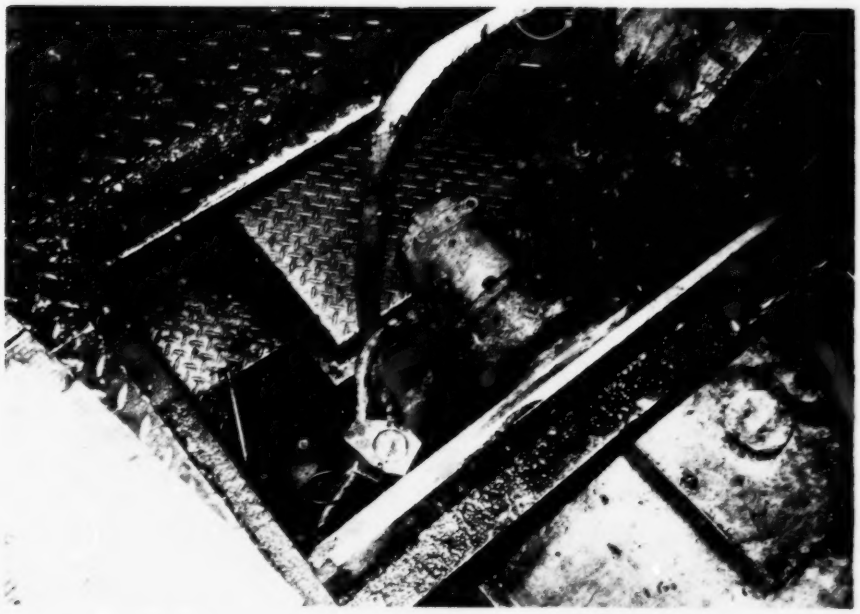




Wreck of "ZIDANI"

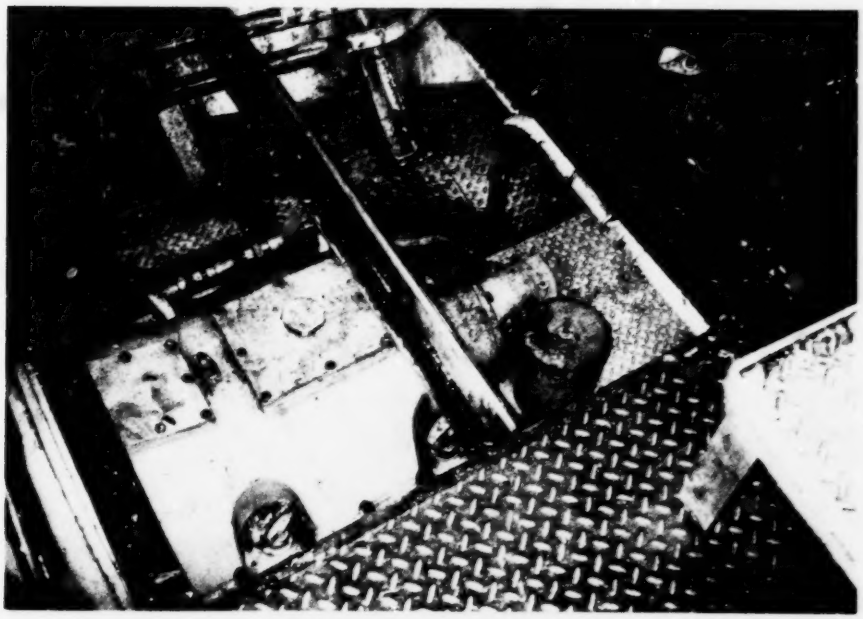
Épave du "ZIDANI"





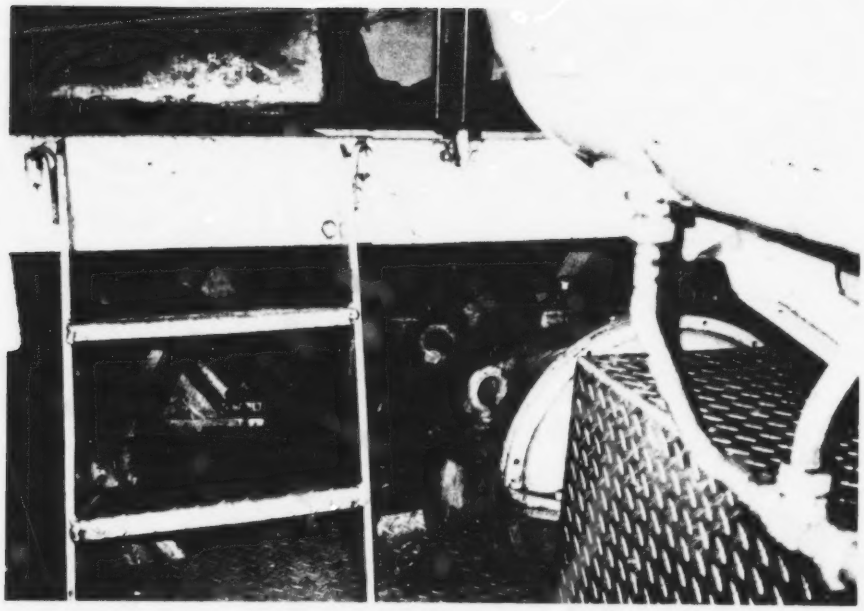
1. View through deck plate to end of gearbox from starboard side sister ship.

1. Vue vers tribord sous le bordé de pont jusqu'à l'arrière de la boîte de vitesse-navire jumeau.



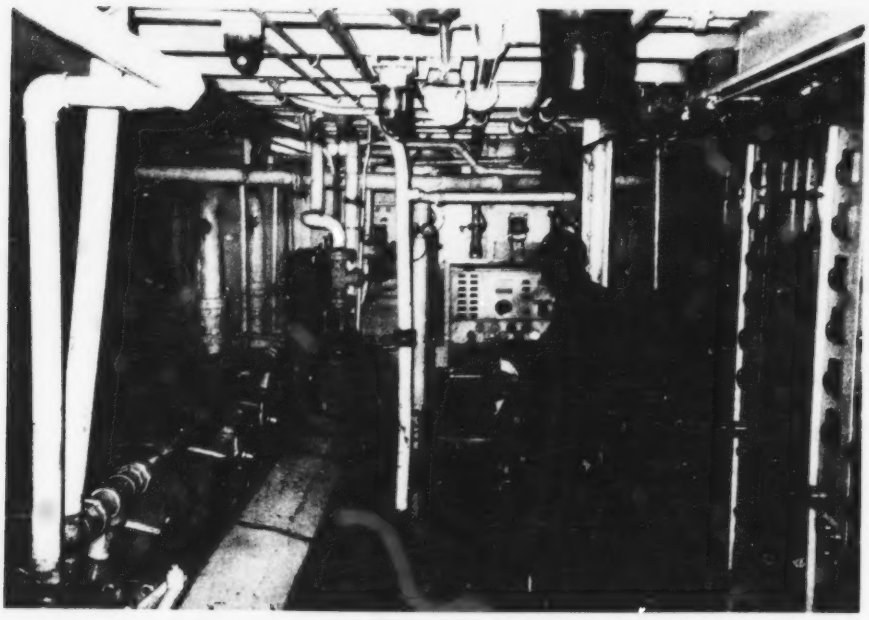
2. Same view from port side.

2. Même vue sur bâbord.



3. View aft to gearbox starboard side.

3. Vue vers l'arrière sur tribord jusqu'à la boîte de vitesse.



4. View looking forward engine-room starboard side.

4. Vue vers l'avant sur tribord dans la salle des machines.